IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): C.A. Lang et al.
Docket No.: YOR920030480US1
Serial No.: 10/723,344
Filing Date: November 26, 2003
Group: 2178
Examiner: Gregory J. Vaughn

Title: Methods and Apparatus for Knowledge
            Base Assisted Annotation

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants (hereinafter referred to as "Appellants") hereby appeal the rejections of claims 1-4, 6-14, and 16-19 of the above referenced application.

The present application should be permitted to proceed to the Board for a decision on the merits.

REAL PARTY IN INTEREST

The present application is assigned to International Business Machines Corporation, as evidenced by an assignment recorded March 12, 2004 in the U.S. Patent and Trademark Office at Reel 014425, Frame 0961. The assignee, International Business Machines Corporation, is the real party in interest.

RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any related appeals or interferences.

STATUS OF CLAIMS

The present application was filed on November 26, 2003 with claims 1-18. Claims 5 and 15 have been canceled. Claim 19 has been added.

Claims 1 and 16-18 are the pending independent claims.

Claims 1-4, 6-11, and 16-19 stand rejected under 35 U.S.C. §102(e).

Claims 12-14 stand rejected under 35 U.S.C. §103(a).

Claims 1-4, 6-14, and 16-19 are appealed.

STATUS OF AMENDMENTS

There has been no amendment filed subsequent to the final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 recites a method of determining an annotation for a document. The method comprises the step of obtaining an annotation proposed by a user to be associated with the document. In accordance with a knowledge base containing allowed annotations, it is automatically determined whether the user-proposed annotation matches one or more allowed annotations from the knowledge base. The document is annotated with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base. The user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation. When more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations; and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected.

An illustrative embodiment of the recited method of determining an annotation for a document (e.g., an exemplary document annotation system) is described in the specification at, for

example, page 6, line 15, to page 7, line 11, with references to FIG. 1. An annotation proposed by a user to be associated with the document is obtained (e.g., Specification, page 6, lines 16-22). In accordance with a knowledge base containing allowed annotations (e.g., Specification, page 6, lines 23-24; Specification, page 1, lines 9-14; and FIG. 1, "Allowed Annotations A" 113), it is automatically determined whether the user-proposed annotation matches one or more allowed annotations from the knowledge base (e.g., Specification, page 7, lines 12-27). The document is annotated with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base (e.g., Specification, page 9, lines 6-15; and FIG. 5). The user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation (e.g., Specification, page 9, lines 12-14). When more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations (e.g., Specification, page 10, lines 13-15); and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected (e.g., Specification, page 10, lines 15-17; and Specification, page 10, line 18, to page 11, line 7 (history information)).

Independent claim 16 recites an apparatus for determining an annotation for a document. The apparatus comprises a memory and at least one processor coupled to the memory. The processor operative to: (i) obtain an annotation proposed by a user to be associated with the document; (ii) automatically determine, in accordance with a knowledge base containing allowed annotations, whether the user-proposed annotation matches one or more allowed annotations from the knowledge base; and (iii) annotate the document with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base. The user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation. When more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations; and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected.

An illustrative embodiment of the recited apparatus for determining an annotation for a document (e.g., document annotation system) is described in the specification at, for example, page 12, line 5, to page 13, line 25, with references to FIG. 6. The apparatus comprises a memory (e.g., Specification, page 12, lines 20-22; Specification, page 13, lines 1-4; and FIG. 6, block 604) and at least one processor coupled to the memory (e.g., Specification, page 12, line 23, to page 13, line 4; and FIG. 6, block 602). The processor operative to: (i) obtain an annotation proposed by a user to be associated with the document (e.g., Specification, page 6, lines 16-22); (ii) automatically determine, in accordance with a knowledge base containing allowed annotations (e.g., Specification, page 6, lines 23-24; Specification, page 1, lines 9-14; and FIG. 1, "Allowed Annotations A" 113), whether the user-proposed annotation matches one or more allowed annotations from the knowledge base (e.g., Specification, page 7, lines 12-27); and (iii) annotate the document with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base (e.g., Specification, page 9, lines 6-15; and FIG. 5). The user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation (e.g., Specification, page 9, lines 12-14). When more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations (e.g., Specification, page 10, lines 13-15); and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected (e.g., Specification, page 10, lines 15-17; and Specification, page 10, line 18, to page 11, line 7 (history information)).

Independent claim 17 recites an article of manufacture for determining an annotation for a document, comprising a machine readable medium containing one or more programs which when executed implement the steps of: obtaining an annotation proposed by a user to be associated with the document; automatically determining, in accordance with a knowledge base containing allowed annotations, whether the user-proposed annotation matches one or more allowed annotation from the knowledge base; and annotating the document with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base. The user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation, and when more than a single annotation is

automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations; and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected.

An illustrative embodiment of the recited article of manufacture for determining an annotation for a document (e.g., document annotation system) is described in the specification at, for example, page 12, line 5, to page 13, line 25, with references to FIG. 6. The article of manufacture comprises a machine readable medium containing one or more programs (e.g., Specification, page 13, lines 14-17) which when executed implement the steps of: obtaining an annotation proposed by a user to be associated with the document (e.g., Specification, page 6, lines 16-22); automatically determining, in accordance with a knowledge base containing allowed annotations (e.g., Specification, page 6, lines 23-24; Specification, page 1, lines 9-14; and FIG. 1, "Allowed Annotations A" 113), whether the user-proposed annotation matches one or more allowed annotation from the knowledge base (e.g., Specification, page 7, lines 12-27); and annotating the document with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base (e.g., Specification, page 9, lines 6-15; and FIG. 5). The user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation (e.g., Specification, page 9, lines 12-14). When more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations (e.g., Specification, page 10, lines 13-15); and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected (e.g., Specification, page 10, lines 15-17; and Specification, page 10, line 18, to page 11, line 7 (history information)).

Independent claim 18 recites a method of providing a service for determining an annotation for a document, comprising the step of a service provider deploying a system operative to: (i) obtain an annotation proposed by a user to be associated with the document; (ii) automatically determine, in accordance with a knowledge base containing allowed annotations, whether the user-proposed annotation matches one or more allowed annotations from the knowledge base; and (iii) annotate the

document with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base. The user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation, and when more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations; and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected.

An illustrative embodiment of the method of providing a service for determining an annotation for a document (e.g., an exemplary document annotation system) is described in the specification at, for example, page 6, line 15, to page 7, line 11, with references to FIG. 1. The method comprises the step of a service provider deploying a system (e.g., Specification, page 13, lines 18-25) operative to: (i) obtain an annotation proposed by a user to be associated with the document (e.g., Specification, page 6, lines 16-22); (ii) automatically determine, in accordance with a knowledge base containing allowed annotations (e.g., Specification, page 6, lines 23-24; Specification, page 1, lines 9-14; and FIG. 1, "Allowed Annotations A" 113), whether the user-proposed annotation matches one or more allowed annotations from the knowledge base (e.g., Specification, page 7, lines 12-27); and (iii) annotate the document with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base (e.g., Specification, page 9, lines 6-15; and FIG. 5). The user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation (e.g., Specification, page 9, lines 12-14). When more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations (e.g., Specification, page 10, lines 13-15); and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected (e.g., Specification, page 10, lines 15-17; and Specification, page 10, line 18, to page 11, line 7 (history information)).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

I. Claims 1-4, 6-11, and 16-19 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,697,799 (hereinafter "Neal").

II. Claims 12-14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Neal in view of Handschuh et al. article entitled "S-CREAM – Semi-Automatic Creation of Metadata" (hereinafter "Handschuh").

ARGUMENT

Appellants incorporate by reference herein the disclosures of all previous responses filed in the present application, namely, responses dated November 28, 2006 and July 17, 2007. Sections I and II to follow will respectively address grounds I and II presented above.

I. Anticipation of claims 1-4, 6-11, and 16-19

   A. Independent claims 1 and 16-18

With respect to the §102(e) rejection, Appellants initially note that MPEP §2131 specifies that a given claim is anticipated "only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," citing Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Moreover, MPEP §2131 indicates that the cited reference must show the "identical invention . . . in as complete detail as is contained in the . . . claim," citing Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Appellants respectfully traverse the §102(e) rejection on the ground that the Neal reference fails to teach or suggest each and every limitation of claims 1 and 16-18 as alleged.

Claim 1 is directed to a method of determining an annotation for a document, the method comprising the steps of: obtaining an annotation proposed by a user to be associated with the document; automatically determining, in accordance with a knowledge base containing allowed annotations, whether the user-proposed annotation matches one or more allowed annotations from the knowledge base; and annotating the document with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base;

wherein the user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation, and when more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations; and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected.

In characterizing the Neal reference as allegedly meeting certain limitations of claim 1, the Examiner relies primarily on col. 2, lines 23-28 and FIG. 8. See Final Office Action at page 3, section 8. However, the relied-upon portions of Neal fail to anticipate the limitations as alleged.

The Neal reference, in col. 2, lines 23-28, states the following:

> The present invention allows an item to automatically be classified using its attributes based on a classification schema and a knowledge base. The invention can include selecting a first attribute of the item, designating a first search strategy comprising the value of the first attribute applied to operate upon data records in a first database.

While Neal is directed to automatically classifying items by creating categories to group like items, like an electronic catalog in some form (see Neal, col. 3, lines 24-41), the claimed invention is patentably distinguishable from Neal.

The claimed invention is directed towards an improved technique for annotating documents, not classifying items by creating categories to group like items, as disclosed in Neal. That is, the claimed invention expressly recites the step of annotating the document with the allowed annotation. Neal does not annotate a document with an allowed annotation, or with classification information as the final Office Action might otherwise assert.

In response to Appellants' arguments, the Examiner refers to Neal at column 3, lines 41-43 and FIG. 3, reference sign 17. See Final Office Action at page 8, section 22. Neal at column 3, lines 41-43 states, "…the items can be tangible or intangible, documents, services, software or any other type of items capable of being described." However, the relied-upon portion of Neal does not teach or suggest annotating the document with an allowed annotation. In contrast, the relied-upon portion of Neal refers to describing items. In addition, FIG. 3, reference sign 17 merely shows a classified

item, and does not disclose the recited step of "annotating the document with an allowed annotation…"

Furthermore, Neal is silent to the annotation modes recited in the independent claims. That is, no where does Neal recite an annotation step wherein the user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation, and when more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations; and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected, as recited in the claimed invention.

The Examiner refers to column 11, lines 48-56 of Neal as disclosing the annotation modes. Neal at column 11, lines 48-56 states as follows (emphasis added):

> The determination as to whether or not to automatically classify an item can be made using thresholds. The thresholds can be made configurable by a system manager depending upon the need for accuracy as balanced against the amount of operator interaction desired. In this approach, the confidence score at each search view is compare to a configurable threshold. If the score is above the threshold, then it is automatically classified. If it is below the threshold, then it is submitted to a user for human review and selection.

Automatically classifying an item when the confidence score is above the configurable threshold does not teach or suggest automatically selecting an allowed annotation when more than a single annotation is automatically determined to match the user-proposed annotation. Furthermore, submitting to a user for human review and selection when the confidence score is below the configurable threshold does not teach or suggest the user considering the matching allowed annotations and selecting one of the matching allowed annotations when more than a single annotation is automatically determined to match the user-proposed annotation.

Accordingly, it is believed that the teachings of Neal fail to meet the limitations of claim 1. Independent claims 16-18 include limitations similar to those of claim 1, and are therefore believed allowable for reasons similar to those described above with reference to claim 1.

B. Dependent claims 2-4, 6-11, and 19

Appellants respectfully traverse the §102(e) rejection of claims 2-4, 6-11, and 19. Appellants initially note that dependent claims 2-4, 6-11, and 19 are believed allowable due to their dependency from independent claim 1, the patentability of which was described above. Furthermore, Appellants believe that one or more of these dependent claims define separately-patentable subject matter over the cited art.

Dependent claim 3 recites the step of storing a user-proposed annotation/allowed annotation match, when a match is found. The Examiner argues that Neal discloses the limitations of claim 3 at FIG. 3, reference sign 51 (shown as "Updated Classification Knowledge Database"). See Final Office Action at page 5, section 10. Appellants disagree. Neal discloses that the updated classification knowledge database is created using words in a reference database. See Neal at column 9, line 66, to column 10, line 13. Neal teaches that the reference database consists of words which frequently describe particular items in a category. Neal at column 9, lines 38-48 states (emphasis added):

> [A] classification knowledge reference database 43 can be used as a source of information to determine which if any words to use in updating 45 the classification knowledge database. In one embodiment, the reference database has a list of each category. A list of all words encountered in descriptions of items in that category is associated with each category name, together with the number of items described by each word. Accordingly, if a word is used to describe most of the items in a category such as "ballpoint" then it can be used to update the classification knowledge database.

Appellants respectfully submit that this disclosure fails to teach storing a user-proposed annotation/allowed annotation match, when a match is found. For at least this reason, Neal does not anticipate the limitations of claim 3.

Dependent claim 4 is directed to notifying the user that the user-proposed annotation matches more than one allowed annotation, when more than one match is found. The Examiner refers to reference number 820 in FIG. 8 of Neal as disclosing the limitations of claim 4. See Final Office Action at page 5, section 11. Reference number 820 refers to an autoclassification configuration that "may appear as a hierarchical tree with multiple levels for the database, search type, and attributes."

See column 19, lines 52-54 of Neal. The autoclassification configuration of Neal is not the same as the limitation of notifying the user that the user-proposed annotation matches more than one allowed annotation, when more than one match is found in the claimed invention. Accordingly, it is believed that the teachings of Neal fail to meet the limitations of claim 4.

Regarding dependent claims 8-10, Appellants assert that Neal fails to teach the claimed limitations. Dependent claim 8 is directed to maintaining a history buffer of matches. Dependent claim 9 is directed to using the history buffer to update a set of allowed annotations. Dependent claim 10 is directed to using the history buffer to disambiguate matches. The Examiner refers to FIG. 3 of the Neal reference as disclosing the limitations of claims 8-10. See Final Office Action at page 5, section 14. In describing FIG. 3, Neal states the following at column 7, lines 8-18 (emphasis added):

> Referring to FIG. 3, the formatted unclassified content 13 is first filtered 31 through a stop list or excluded words database 19. It is then processed against the automatic classification knowledge database 21 or any other knowledge base in order to assign it to a category 15. This classification process is discussed in more detail with respect to FIGS. 4 and 5. The result is the classified content 17 of FIG. 1.

> FIG. 3 shows how, in the process of classifying each item, the stop list 19 and the classification knowledge database 21 can be updated.

Illustrative embodiments of the invention allow for user entered terms to be stored together with their match in a history buffer, e.g., history memory 108. The history buffer may typically have limited size and may store the most recent matches. This has at least two advantages. First, the buffer allows determining "hot" and "cold" terms of the allowed annotations A for optimization of A's content. "Hot" terms are terms that are used very often, while "cold" terms are terms that are used very rarely. Second, the buffer aides matching in case of ambiguities. See the present specification at page 10, lines 19-25.

It is thus clear that the elements of FIG. 3 of Neal, i.e., excluded words database 19, are not the same as the claimed features of the present invention. Accordingly, it is believed that the teachings of Neal fail to meet the limitations of claims 8-10.

For at least these reasons, Appellants respectfully request withdrawal of the §102(e) rejection of dependent claims 2-4, 6-11, and 19.

II. Obviousness of dependent claims 12-14

With regard to the §103(a) rejection of claims 12-14, the Examiner looks to the Handschuh reference to supplement the deficiencies of Neal. Appellants respectfully assert that the combined teaching of Neal and Handschuh fail to render claims 12-14 obvious. Appellants initially submit that Handschuh fails to remedy the deficient teaching of Neal as discussed above with regard to claim 1, from which claims 12-14 depend.

Appellants note that a proper case of obviousness has not been presented if the references, when combined, do not teach or suggest all the claim limitations. Furthermore, the claimed subject matter is not obvious if there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references or to modify the reference teachings. An analysis supporting a rejection under 35 U.S.C. §103 should be explicit and should not based on mere conclusory statements. See KSR v. Teleflex, 127 S.Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (U.S., Apr. 30, 2007), quoting In re Kahn, 441 F. 3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.").

Claim 12 recites a knowledge base comprising at least one term graph. Claim 13 recites that the automatic determining step further comprises the steps of: determining a node in the at least one term graph that corresponds to the user-proposed annotation; determining at least one node in the at least one term graph that corresponds to the at least one allowed annotation; and computing a distance between the nodes. Claim 14 recites that the node determination of claim 13 comprises a stemming operation.

The Examiner argues that the diagram at the top of page 4 of the Handschuh reference teaches the limitations of claims 12 through 14. See Final Office Action at page 7, section 20. Although Handschuh discloses what appears to be a term graph, no where does Handschuh teach or suggest the limitations of determining a node in the at least one term graph that corresponds to the

user-proposed annotation, determining at least one node in the at least one term graph that corresponds to the at least one allowed annotation, and computing a distance between the nodes as recited in claim 13, and no where does Handschuh teach or suggest node determination comprising a stemming operation as recited in claim 14.

Appellants further submit that the Examiner has failed to provide a valid suggestion or motivation to combine Neal with Handschuh. Neal discloses the automated classification of items using cascade searches (see Neal, Abstract) and Handschuh discloses a framework that allows for the creation of metadata (see Handschuh, Abstract). The Examiner does not clearly show that a person of ordinary skill in the art would combine the two cited references. In the final Office Action, the Examiner states at page 7, section 20:
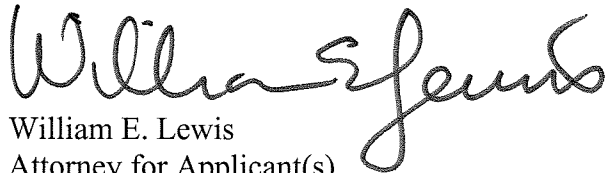
> Therefore it would have been obvious, to one of ordinary skill at the time the invention was made, to combine the annotation system of Neal with the term graph of Handschuh, in order to calculate the degree of separation between the user-proposed term and the allowed term, which would indicate to a system user the allowability of the proposed term.

Appellants respectfully submit that this is a conclusory statement of the sort rejected by both the Federal Circuit and the U.S. Supreme Court. See KSR v. Teleflex, No. 13-1450, slip. op. at 14 (U.S., Apr. 30, 2007), quoting In re Kahn, 441 F. 3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."). There has been no showing in the present §103(a) rejection of claims 12-14 of objective evidence of record that would motivate one skilled in the art to combine Neal and Handschuh to produce the particular limitations in question.

For at least these reasons, the combined teaching of Neal and Handschuh fail to render claims 12-14 obvious. Accordingly, withdrawal of the §103(a) rejection of claims 12-14 is respectfully requested.

In view of the foregoing, Appellants believe that claims 1-4, 6-14, and 16-19 are in condition for allowance, and respectfully request withdrawal of the §102(e) and §103(a) rejections.

Respectfully submitted,

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<u>APPENDIX</u>

1. A method of determining an annotation for a document, the method comprising the steps of:

obtaining an annotation proposed by a user to be associated with the document;

automatically determining, in accordance with a knowledge base containing allowed annotations, whether the user-proposed annotation matches one or more allowed annotations from the knowledge base; and

annotating the document with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base;

wherein the user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation, and when more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations; and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected.

2. The method of claim 1, further comprising the step of notifying the user that the user-proposed annotation does not match at least one allowed annotation, when no match is found.

3. The method of claim 1, further comprising the step of storing a user-proposed annotation/allowed annotation match, when a match is found.

4. The method of claim 1, further comprising the step of notifying the user that the user-proposed annotation matches more than one allowed annotation, when more than one match is found.

6. The method of claim 1, wherein the user is notified of match results after each attempted matching operation.

7. The method of claim 1, wherein the user is notified of match results after a predetermined number of attempted matching operations.

8. The method of claim 1, further comprising the step of maintaining a history buffer of matches.

9. The method of claim 8, wherein the history buffer is used to update a set of allowed annotations.

10. The method of claim 8, wherein the history buffer is used to disambiguate matches.

11. The method of claim 1, wherein the automatic determining step further comprises determining a closeness between the user-proposed annotation and the at least one allowed annotation.

12. The method of claim 1, wherein the knowledge base comprises at least one term graph.

13. The method of claim 12, wherein the automatic determining step further comprises the steps of:

determining a node in the at least one term graph that corresponds to the user-proposed annotation;

determining at least one node in the at least one term graph that corresponds to the at least one allowed annotation; and

computing a distance between the nodes.

14. The method of claim 13, wherein node determination comprises a stemming operation.

16. Apparatus for determining an annotation for a document, the apparatus comprising:

a memory; and

at least one processor coupled to the memory and operative to: (i) obtain an annotation proposed by a user to be associated with the document; (ii) automatically determine, in accordance with a knowledge base containing allowed annotations, whether the user-proposed annotation matches one or more allowed annotations from the knowledge base; and (iii) annotate the document with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base;

wherein the user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation, and when more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations; and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected.

17. An article of manufacture for determining an annotation for a document, comprising a machine readable medium containing one or more programs which when executed implement the steps of:

obtaining an annotation proposed by a user to be associated with the document;

automatically determining, in accordance with a knowledge base containing allowed annotations, whether the user-proposed annotation matches one or more allowed annotation from the knowledge base; and

annotating the document with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base;

wherein the user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation, and when more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations; and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected.

18.   A method of providing a service for determining an annotation for a document, comprising the step of:

a service provider deploying a system operative to: (i) obtain an annotation proposed by a user to be associated with the document; (ii) automatically determine, in accordance with a knowledge base containing allowed annotations, whether the user-proposed annotation matches one or more allowed annotations from the knowledge base; and (iii) annotate the document with an allowed annotation from the knowledge base when the user-proposed annotation matches the allowed annotation from the knowledge base;

wherein the user need not consider any annotations when a single allowed annotation is automatically determined to match the user-proposed annotation, and when more than a single annotation is automatically determined to match the user-proposed annotation: (a) in a first mode, the user need only consider the matching allowed annotations and select one of the matching allowed annotations; and (b) in a second mode, the user need not consider any annotations but rather one of the allowed annotations is automatically selected.

19.   The method of claim 1, wherein the user-proposed annotation is stored, when the user-proposed annotation matches the allowed annotation, such that the user-proposed annotation is useable in a subsequent match operation.

<u>EVIDENCE APPENDIX</u>

None.

<u>RELATED PROCEEDINGS APPENDIX</u>

None.